

What is claimed is:

- 1 1. A system for providing an e-learning course, comprising:
2 a database for storing a plurality of reusable learning objects and a profile of at least one
3 student that defines a plurality of course requirements of the student; and
4 a dynamic rendering engine responsive to the student profile and operable to assemble a
5 subset of the learning objects on-the-fly for delivery to the student.
- 1 2. The system of claim 1, wherein each of the learning objects represents a discrete element
2 of the subject matter or presentation of the e-learning course.
- 1 3. The system of claim 1, wherein the profile includes a technological capability of a
2 computer system being utilized by the student.
- 1 4. The system of claim 3, wherein the technological capability is bandwidth available to the
2 student for receiving the e-learning course.
- 1 5. The system of claim 1, wherein the profile includes a course preference of the student.
- 1 6. The system of claim 5, wherein the course preference includes a language preference of
2 the student in receiving the e-learning course.
- 1 7. The system of claim 1, wherein the profile includes information as to learning objectives
2 with which the student is familiar, whereby the dynamic rendering engine assembles the e-
3 learning course without learning objects that contain the familiar learning objectives.
- 1 8. The system of claim 7, wherein at least one of the learning objects includes an assessment
2 item for determining the learning objects containing familiar learning objectives.

3 a dynamic delivery tool operable to dynamically assemble and deliver a course page of
4 instruction embodying at least one learning object to a student in response to a request by the
5 student; and

6 a learning management system containing a student profile of the student;

7 wherein the dynamic delivery tool determines the at least one learning object based upon
8 the student profile.

1 18. The e-learning tool of claim 17, wherein the authoring tool includes a template-based
2 content editor for creating the plurality of learning objects.

1 19. The e-learning tool of claim 17, wherein each learning object is categorized in one of a
2 plurality of hierarchical classes, and further wherein each of the learning objects within a first
3 class of the plurality of hierarchical classes contain a learning objective, an assessment item and
4 a subsection of course content.

1 20. The e-learning tool of claim 19, wherein the dynamic delivery tool determines the at least
2 one learning object based upon whether an administration of the assessment item determines
3 whether the student is familiar with a learning objective corresponding to the learning object.

1 21. The e-learning tool of claim 20, wherein the student profile contains a language
2 preference of the student for delivery of the course page of instruction.

1 22. The e-learning tool of claim 21, wherein the student profile includes a technical
2 capability of a computer system used by the student to receive the course page of instruction.

1 23. The e-learning tool of claim 22, wherein the technical capability is an amount of
2 available bandwidth.

1 24. The e-learning tool of claim 17, wherein the learning management system presents course
2 information to the student in a form of a campus that summarizes which of a plurality of courses
3 are available to the student and which of the available courses the student has already taken.

1 25. The e-learning tool of claim 17, further comprising a database for storing the plurality of
2 learning objects and the student profile.

1 26. The e-learning tool of claim 25, wherein the student profile comprises a plurality of
2 profile objects, wherein each profile object represents a course delivery directive, and further
3 wherein the course delivery directive includes a course preference of the student, a course
4 requirement of the student, or a course requirement of a course administrator.

1 27. The e-learning tool of claim 26, wherein each learning object includes a semantic
2 description and each profile object includes a semantic definition.

1 28. The e-learning tool of claim 27, wherein the dynamic delivery tool determines the at least
2 one learning object by matching elements of a learning object semantic description against
3 elements of a profile object semantic description.

1 29. The e-learning tool of claim 28, wherein the learning objects and profile objects are
2 manipulated within a business object model engine.

1 30. The e-learning tool of claim 29, wherein the database is a relational database.

1 31. The e-learning tool of claim 30, further comprising an object-to-relational mapping tool
2 operable to map learning objects and profile objects into the relational database for storage.

1 32. A system for formulating and distributing an e-learning course, comprising:
2 a first software application that receives e-learning content and categorizes the content
3 into classes of discrete elements, each discrete element representing a separate characteristic of
4 the e-learning course and its presentation, the classes of discrete elements having pre-defined
5 behaviors and relationships therebetween;
6 a second software application that receives information regarding a student's
7 requirements for the course; and

8 a third software application that correlates the received information with the classes of
9 discrete elements so as to automatically and dynamically assemble and render the discrete
10 elements as an e-learning course customized to the individual requirements of the student.

1 33. The system of claim 32, wherein the student information identifies a language preference
2 of the student, a technological capability of a computer system used by the student to access the
3 e-learning content, and information as to e-learning content with which the student is familiar.

1 34. The system of claim 32, wherein the discrete elements are created and classified
2 according to a plurality of business requirements for delivery of the e-learning content.

1 35. The system of claim 34, wherein the discrete elements are used in creating a Uniform
2 Modeling Language (UML) diagram for modeling the software applications.

1 36. The system of claim 35, wherein the software applications are based on the UML
2 diagram and written in Java.

1 37. A method for dynamically delivering a page of e-learning course content to a user,
2 comprising:

3 storing a plurality of discrete learning objects within a database; and
4 assembling and delivering the page including at least one of the learning objects in
5 response to an input from the user in approximately real-time to the user, based upon individual
6 delivery parameters of the user.

1 38. The method of claim 37, wherein each of the learning objects pertains to presentation,
2 content or delivery of the e-learning course.

1 39. The method of claim 37, further comprising:
2 creating the learning objects by utilizing a template-based authoring tool.

40. The method of claim 37, wherein said assembling and delivering the at least one of the learning objects in response to an input from the user in approximately real-time to the user, based upon individual delivery parameters of the user, further comprises:

comparing semantic elements of a subset of the learning objects with semantic elements of a plurality of profile objects that profile the individual delivery parameters of the user.

41. The method of claim 37, wherein the individual delivery parameters of the user include a language preference of the user, a technological capability of a computer system used by the user to access the e-learning content, and information as to e-learning content with which the student is familiar.

42. The method of claim 37, further comprising:
testing the user's knowledge of the e-learning content prior to assembly and delivery, to thereby assist in determining the at least one of the learning objects.

43. An article of manufacture, which comprises a computer readable medium having stored thereon instructions for carrying out a method for delivering e-learning content, the method comprising:

accumulating course content by a first code segment;
defining the course content in terms of discrete, reusable learning objects by a second code segment;

determining a subset of the learning objects for distribution to a user based on requirements of the user by a third code segment; and

dynamically delivering the subset of learning objects to the user by a fourth code segment.

44. The article of manufacture of claim 43, wherein the requirements of the user include a language preference of the user, a technological capability of a computer system used by the user to access the e-learning content, and information as to e-learning content with which the student is familiar.

1 45. The article of manufacture of claim 44, wherein the requirements of the user are
2 separately stored within a database, and further wherein the third code segment determines the
3 subset of learning objects by semantically matching the requirements to the subset of learning
4 objects.

1 46. The article of manufacture of claim 43, wherein the first code segment further comprises:
2 a code segment for presenting a plurality of templates to a course developer, for entering
3 the course content into the templates for accumulation.

1 47. An e-learning development and distribution tool for providing course content,
2 comprising:

3 means for accumulating and storing a plurality of discrete software entities, wherein each
4 entity embodies one aspect of presenting, accessing or explaining the course content; and

5 means for assembling and delivering at least one of the discrete entities to at least one
6 student in response to an input from the student in approximately real-time, such that the student
7 receives an individualized version of the course content.

1 48. The tool of claim 47, further comprising:

2 means for characterizing individual delivery parameters of the student, from which the

3 means for assembling and delivering determines the at least one discrete entity to deliver.